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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/627,034

07/24/2003

Michael L. Crabtree

O02-075A

3716

29293

7590

10/03/2006

FREUDENBERG-NOK GENERAL PARTNERSHIP
LEGAL DEPARTMENT
47690 EAST ANCHOR COURT
PLYMOUTH, MI 48170-2455

EXAMINER

SY, MARIANO ONG

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/627,034	CRABTREE, MICHAEL L.	
	Examiner	Art Unit	
	Mariano Sy	3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on August 9, 2006 has been received.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warmuth, II et al. (US 4,741,517) in view of Hirtreiter et al. (US 3,897,941).

Re-claims 1-3 Warmuth, II et al. disclosed, as shown in fig. 1-3, an air spring sleeve comprising: an elastomer body 18 having first and second ends configured to be coupled to first and second structures; a first cord 29 embedded in the elastomer body, the first cord wound with a first helix angle with respect to a sleeve centerline and extending from said first end to said second end; a second cord 31 embedded in the elastomer body, the second cord wound with a second helix angle with respect to a sleeve centerline and extending from said first end to said second end; the first cord disposed radially inward of the second cord and the first angle and the second angle are the same (see col. 4, lines 7-12).

Warmuth failed to disclose the helix angle of the first cord is greater than the helix angle of the second cord and the differential helix angle is in the range of approximately 0 to 5 degrees or 0 to 2.5 degrees.

Hirtreiter et al. teaches the helix angle of the first cord is greater than the helix angle of the second cord and the differential helix angle is in the range of approximately 0 to 5 degrees or 0 to 2.5 degrees (see col. 8, lines 1-8).

It would have been obvious to one of ordinary skill in the art to modify the cords of Warmuth with the helix angle of the first cord is greater than the helix angle of the second cord and the differential helix angle is in the range of approximately 0 to 5 degrees or 0 to 2.5 degrees, as taught by Hirtreiter et al., in order to optimize the dynamic flexibility of the sleeve depending upon the type of application.

Re-claim 12 Warmuth, II et al. disclosed, as shown in fig. 1-3, wherein the first cord has a structure similar to the structure of the second cord.

Re-claim 15 Warmuth, II et al. disclosed, as shown in fig. 1-3, wherein said first and second cords being made from polyester, polyester, aromatic polyamides, nylon or steel wire (see col. 5, lines 33-37).

Response to Arguments

4. Applicant's arguments filed on August 9, 2006 have been fully considered but they are not persuasive.

Applicant argued in the Remarks that Hirtreiter (US 3,897,941) cited by the Examiner as teaching this differential helix angle (col. 8, lines 1-8) concerns cords 17.

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Cords 17 are part of reinforcement 16, which is part of connecting portion 13. As clearly seen in Figure 1, connecting portion 13 does not extend the length of body 2.

Specifically, portion 13 as shown in Figure 1 stops short of extending to either end".

Examiner disagrees with Applicant's argument since Hirtreiter is merely used only for the known teaching of differential helix angle in the range of approximately 0 to 5 degrees or 0 to 2.5 degrees (see col. 8, lines 1-8).

It would have been obvious to one of ordinary skill in the art to modify the cords of Warmuth with the helix angle of the first cord is greater than the helix angle of the second cord and the differential helix angle is in the range of approximately 0 to 5 degrees or 0 to 2.5 degrees, as taught by Hirtreiter et al., in order to optimize the dynamic flexibility of the sleeve depending upon the type of application.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariano Sy whose telephone number is 571-272-7126. The examiner can normally be reached on Mon.-Fri. from 8:30 A.M. to 2:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan, can be reached on 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Sy M. Sy

September 18, 2006

DEVON C. KRAMER
PATENT EXAMINER

Devon *Mariano*
9/28/06

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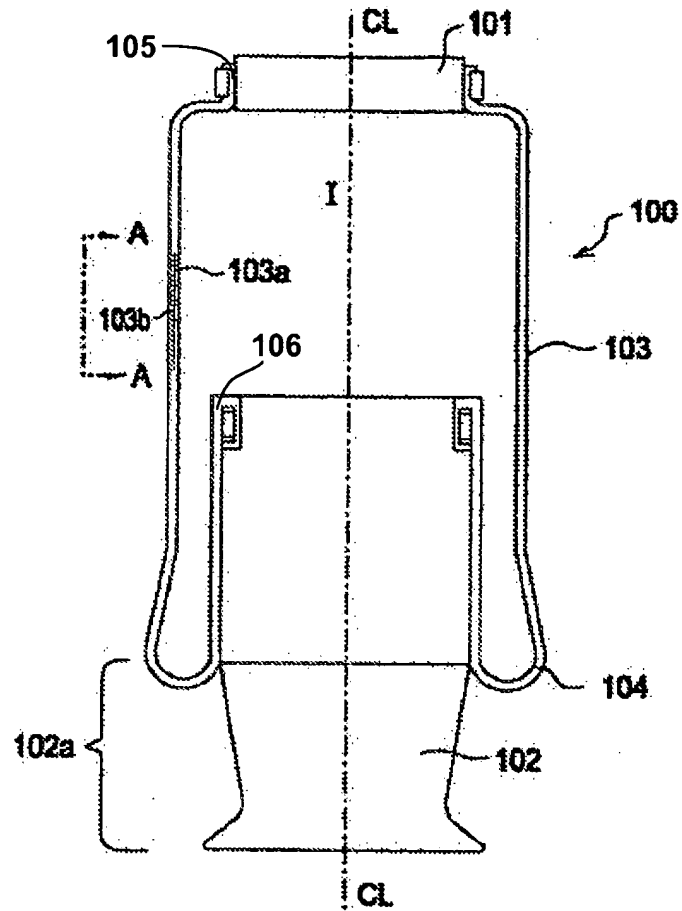


FIG. 1

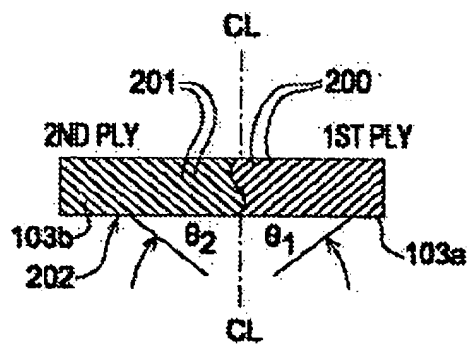


FIG. 2

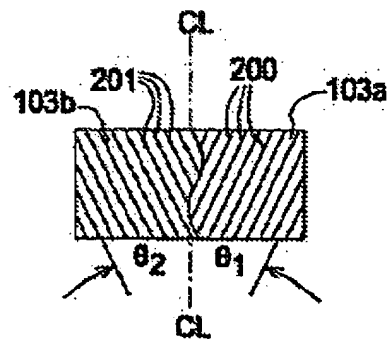


FIG. 3

